

## **ABSTRACT**

A composition and a kit for treating cancer comprising N,N-dimethylphytosphingosine. The composition represses the activity of sphingosine kinase, and therefore, intercepts various mechanisms which sphingosine kinase induces. For example, the composition blocks the phosphorylation of ceramide and sphingosine, thereby maintaining high concentration of ceramide and sphingosine. The ceramide and sphingosine induce apoptosis in cancer cells. Therefore, the composition according to the present invention induces apoptosis in cancer cells and accordingly kills the cancer cells.